M0170049 Incoming
cc: Mineral Staff

DENISON MINES

Denison Mines (USA) Corp.
1050 17th Street, Suite 950
Denver, CO 80265
USA

Tel : 303 628-7798
Fax : 303 389-4125

www.denisonmines.com

August 25, 2008

Paul Baker
Utah Division of Oil, Gas, and Mining
1594 NW Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Re: Responses to First Review of Amended Notice of Intention to Commence Large Mining Operations, Denison Mines (USA) Corp., Tony M Mine, M0170049, Task 2449

Dear Mr. Baker:

Attached are our responses to your comments on the Notice of Intention to Commence Large Mining Operations, Tony M Mine, M0170049, Task 2449. Comments 1, 3, and 8 were addressed in the text and replacement pages are attached. Some details about particular comments are discussed below.

Comment 2: Two documents are attached. The first is the Multi-Sector General Permit for Storm Water Discharges associated with Industrial Activity (UTR010215). The second is a Record of Conversation between a Mr. Garn, UDEQ, and myself. In this conversation, Mr. Garn states that careful management of the ore pad to prevent run-off from reaching the sediment pond, and monitoring required in the permit, would adequately protect receiving water from impact from the site, such that an additional point discharge permit would not be required. If UDEQ still has concerns following a potential sampling event, Denison will be happy to discuss what additional measures can be taken to alleviate this concern.

Comments 4 and 5: We found that the details of several tanks installed on site were not included in the version of the NOI sent to you in June 2008. The Surety Estimate text (page 4) and tables (all), the NOI text (page 13) and the SPCC text (pages 7 to 10) have all been updated to reflect these changes, and replacement pages are provided.

Comment 6: Reference to tank numbers have been added to the Surety Estimate tables.

Comment 7: The size of the laydown area was increased in the Surety Estimate tables from 0.17 acres to 2 acres, and the change reflected in the tables. No changes were made to Exhibit G-1.

0010

RECEIVED
AUG 26 2008
DIV. OF OIL, GAS & MINING

If you have questions on the contents of this submittal, I can be reached at (303) 389-4136.

Yours very truly,

Christy Woodward

DENISON MINES (USA) CORP.

Christy Woodward, P.E.
Environmental Coordinator

Cc: Denison File
Harold R. Roberts, Denison Mines (USA) Corp.
Terry Wetz, Denison Mines (USA) Corp.
Tetra Tech, file

August 20, 2008

DENISON REPONSES TO COMMENTS FROM THE

REVIEW OF AMENDED NOTICEOF INTENTION TO COMMENCE LARGE MINING OPERATIONS

Dennison Mines
Tony M Mine
M0170049
August 11, 2008

General Comments:

Comment #	Sheet/Page/ Map/Table #	Comments	Response	Initials	Review Action
1	General	Section 5.0 of the drainage plan references the original two pond system for the facilities area. This section and any other references need to be updated in the plan to the current proposal of the one pond system within the facilities area.	*The text in Section 5.0 referring to the two pond system has been changed to reflect the presence of one pond. See page G-13 attached.*	TM	

R647-1-102. Introduction.

Comment #	Sheet/Page/ Map/Table #	Comments	Response	Initials	Review Action
2		The plan fails provide for a UPDES permit for the storm water pond found within the facilities area. An inspection report from the Division of Water Quality says, ". . . it appears that there is a possibility that during a storm event there could be some runoff from the exposed ore on the ore pad that could reach the stom water pond. If storm water and process water do come in contact with each other then the water in the pond would be considered process water and would need and [sic] individual UPDES permit for any discharge." It is the Division's opinion that a UPDES permit is needed and if this pond discharges that it would be in violation of the Clean Water Act. The Division considers this discharge a definite possibility and requests that the operator look into permitting this pond under the UPDES program.	*Discussions with UDEQ (see attached Record of Conversation dated 7/9/08), indicated that if precipitation at the site is managed by sloping the ore pad such that any stormwater coming in contact with he ore did not reach the sediment pond, that the Tony M Industrial Stormwater Permit (attached) for the site would be sufficient, and a UPDES permit is not required.* *In addition, the industrial stormwater permit indicated requires monitoring requirements for any stormwater leaving the sediment pond. If UDEQ still has concerns following a potential sampling event, Denison will be happy to discuss what additional measures can be taken to alleviate this concern.*	TM & PBB	

August 20, 2008

R647-4-106 - Operation Plan

106.6 Plan for protecting & redepositing soils

Comment #	Sheet/Page/ Map/Table #	Comments	Response	Initials	Review Action
3	Page 21, Section 106.6	Please modify the table at the beginning of this section so it is clear and consistent with the text. The table says 7-15 inches of soil would be salvaged from 7.3 acres, but the text says 5-10 inches was taken from an area less than 7.3 acres (which the Division calculates as being 4.5 acres). So the table is complete, please also include the material from the waste rock pile in this table (9000 cubic yards). The Division prefers having the table, but, alternately, the table could be eliminated.	*The table at the beginning of Section 106.6 and the text that follows has been edited as requested. See attached page 21.*	PBB	

R647-4-113 – Surety

Comment #	Sheet/Page/ Map/Table #	Comments	Response	Initials	Review Action
4	Page 13, Para 4	Need to add an additional tank to the surety calc sheet Table 3 Page 1 of 1	*The list of existing tanks surety estimate, the SPCC and the NOI text was incorrect. All of these have been updated for this response to comments, and the changes are shown in the attached documents.*	lah	
5	Page 13, Para 6	Review number of 55 gallon barrels ?? listed in the narrative to the surety calc sheet Table 3 Page 1 of 1 (2,000 gal listed)	*The reference to 55 gallon barrels was incorrect; these materials are being stored in 110- to 500-gallon tanks. The surety estimate and the text have been corrected to reflect the tanks on site, as shown in the attached documents.*	lah	
6	Attachment I	Spill Prevention Control and Countermeasure Plan – Fluid storage tanks are noted and labeled AST #1 thru #8 and Misc petroleum products, it is suggested that the surety sheets follow the same labeling system for consistency	*References to all the tanks in the surety estimate, the SPCC and the NOI text have been labeled with these reference numbers. See attached documents.*	lah	
7	Exhibit G-1	As-built for laydown yard shown at ~2 acres; surety bond listed as a size of .17 acre on Table 1 page 2 of 2. Either up the bond disturbance area or define on the map where the 0.17 acres will be.	*The acreage of the lay down area has been changed to 2.0 acres on Table 1 of the surety bond. This changed the total cost for revegetation (Table 6) to $30, 16, which is also reflected on Table 9.*	lah	

August 20, 2008

Comment #	Sheet/Page/ Map/Table #	Comments	Response	Initials	Review Action
8	Appendix A & elsewhere in text	"On site disposal" Any waste matter, structures, infrastructures, facilities or equipment that is disposed of "on site" - the area location needs to be surveyed and documented for future reference.	*These materials will be disposed of in the underground workings at closure. Therefore, these references were changed to say "underground disposal." See attached page 1 of Appendix A. A survey of the underground disposal site will be provided prior to disposal.*	lah	

RECORD OF CONVERSATION

Type of Conversation: Phone
Date of Conversation: 7/9/8
Conversation between: Christy Woodward, Denison Mines (USA) Corp. & Mathew Garn, Environmental Engineer UPDES Engineering Section, Utah Department of Environmental Quality

Notes:

I called Mathew Garn with UDEQ to discuss the inspection report for the Tony M Mine UPDES Permit Number UTR010215 dated June 17, 2008 (inspection date May 13, 2008). In the inspection report it was recommended that we fill out a No Exposure Certification form stating that a condition of no exposure exists at the Tony M Mine for industrial materials. Specifically, this form would indicate that the ore pad would be covered with a storm resistant shelter to prevent any stormwater which may come in contact with the ore from flowing into (and ultimately out of) the temporary sedimentation pond. In my initial conversation with Mr. Garn, he indicated that we could just ensure that the ore pad sloped back onto the concrete ore bins and provide a berm around the ore pads to ensure that no water leaves this area. He indicated that the no exposure form would be Ok if these measures were taken.

Mr. Garn called back a second time and indicated that he had spoken with his boss and this person had told him that our existing permit is sufficient and covers any potential stormwater that would outflow from the ore pad and consequently the temporary sediment basin. He then reminded me that as a condition of this permit, we would need to visually inspect these areas after a qualifying storm event (greater than 0.1 inch of rainfall). In addition, we need to try and take a water sample from the temporary sediment outfall in the 2nd and 4th year of our permit and then every other year thereafter. This is a condition of the permit.

State of Utah

Department of Environmental Quality

Richard W. Sprott
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

RECEIVED

BY:_____

May 12, 2008

Mr. Harold Roberts
Denison Mines (USA) Corp.
105017th Street, Suite 950
Denver, CO 80265

Dear Mr. Roberts:

Subject: Utah Pollutant Discharge Elimination System (UPDES) Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity, Coverage No. **UTR010215.**

Our office received your "notice of intent" (NOI) for **Denison Mines (USA) Corp.** to obtain coverage under the *UPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity, General Permit No. UTR000000* on May 09, 2008. The received NOI is for the Tony facility located at, Latitude 37.757 Longitude -110.704, Ticaboo, Utah, Garfield County. This letter confirms your coverage under the general permit; the permit coverage number for the facility is **No. UTR010215.** Please use this number in any future correspondence associated with this project.

This coverage is effective **May 09, 2008** and expires at midnight, **December 31, 2010.**

The permit requires a Storm Water Pollution Prevention Plan (SWP3). Maintaining a current copy of the SWP3 at the site is a requirement of the permit. Monitoring is also required as outlined in appendix II requirements. Please review these requirements if you are not familiar with them. A copy of the general permit and appendix requirements can be found on our website at http://www.waterquality.utah.gov/updes/stormwater.htm.

Storm water discharge monitoring report (SWDMR) forms are enclosed for your convenience. These forms may be used to record visual and/or analytical monitoring results.

As the agency charged with the administration of issuing UPDES Permits, we are continuously looking for ways to improve our quality of service to you. Please take a few moments to complete the enclosed questionnaire, and return it in the enclosed, self-addressed, postage paid, envelope. The results will be used to improve our quality and responsiveness and give us feed back on customer satisfaction.

If you have any questions concerning this letter or your permit coverage please do not hesitate to contact me by phone at (801) 538-9325 or by e-mail at mmgeorge@utah.gov. Thank you.

Sincerely,

Mike George, Environmental Scientist
UPDES IES Section

Enclosure

U:\WQ\PERMITS\Mgeorge\wp\storm water\group 3\denison(tony)mine.doc

Form MR-REV-att (DOGM – Revise/Amend Change Form)
(Revised September 14, 2005)

Application for Mineral Mine Plan Revision or Amendment

Operator: Denison Mines Corp.

Mine Name: Tony M Mine File Number: M/0170/049/

Provide a detailed listing of all changes to the mining and reclamation plan that will be required as a result of this change. Individually list all maps and drawings that are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise or amend the existing Mining and Reclamation Plan. **Include page, section and drawing numbers as part of the description.**

DETAILED SCHEDULE OF CHANGES TO THE MINING AND RECLAMATION PLAN

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
☐ ADD	☒ REPLACE	☐ REMOVE	Replace page G-13 of the Drainage Plan with the attached pages G-13.
☐ ADD	☒ REPLACE	☐ REMOVE	Replace page 21 of the Operation Plan with the attached page 21.
☐ ADD	☒ REPLACE	☐ REMOVE	Replace page 4 of the Surety Estimate text with the attached page 4.
☐ ADD	☒ REPLACE	☐ REMOVE	Replace the entire Surety Estimate with the Surety Estimate provided.
☐ ADD	☒ REPLACE	☐ REMOVE	Replace page A-1 of Appendix A of the Surety Estimate with the attached page A-1.
☐ ADD	☒ REPLACE	☐ REMOVE	Replace pages 7-10 of the Attachment I SPCC with pages of the attached pages 7 - 10.
☐ ADD	☒ REPLACE	☐ REMOVE	Replace page 13 of Operation Plan with the attached page 13.
☐ ADD	☐ REPLACE	☐ REMOVE	
☐ ADD	☐ REPLACE	☐ REMOVE	

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments and obligations, herein.

Harold Roberts
Print Name

Exec. V.P. - US Ops.
Sign Name, Position

Aug. 15, 2008
Date

Return to:

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Phone: (801) 538-5291 Fax: (801) 359-3940

FOR DOGM USE ONLY:
File #: M/ /
Approved:
Bond Adjustment: from ($)
to $

TABLE G-7 TYPICAL CHANNEL DROPS

Channel	Q	Drop height	Drop number	Ld	Lj	L
	cfs/ft	Feet		feet	feet	feet
PF-2	**14.05**	389	0.00	21.79	50.46	**72.25**

The extreme height of the drop into this area drives the drop number to zero, creating a length of the hard basin of 72.25 feet; however, space in the area is limited to approximately 50 feet by 50 feet. Based on this information, rip rap with a D_{50} of 9 inches will be placed in the basin. In addition, larger rip rap (D_{50} of 12 inches) will be placed with jagged edges directed upward to create a misting effect when water falls down the canyon wall. The misting effect will dissipate the energy of the water coming down the canyon wall and prevent erosion in the basin and subsequent channel.

In an effort to provide erosion control and prevent sediment from leaving the mine site ~~and waste rock facility~~, **all** water that is captured in PF-1 will be routed through a temporary sedimentation basin. ~~In addition, a temporary sediment basin will be installed to capture flows from the disturbed area created by the lay down yard, warehouse, mine office, leach field, and storage yard 2.~~ These basins ~~were~~ **was** designed per UDFCD, Design Manual, Volume 3 – Best Management Practices standards. The basin areas ~~are~~ is designed to provide 1,800 cubic feet of storage per acre of the watersheds. The temporary sedimentation basin 1 will be 50 feet wide and 103 feet long with a 1 percent slope on the bottom. The basin will be placed in the flow line of the channel and have a perforated PVC outfall riser pipe surrounded by gravel rock to filter water leaving the basin. ~~The temporary sediment basin 2 will be 35 feet wide by 75 feet long.~~ Details for the basins ~~are~~ **is** included on Exhibit G-5. Earthen berms will be used throughout the mine facilities area to route any potential runoff into the temporary sediment basins. These earthen berms are illustrated on Figure G – 1.

5.1 DRAINAGE BASIN PF-1 RE-STUDY

Based upon newer information, such as the as-built contours of the sedimentation basin, outlet riser pipe and updated rainfall information, basin PF-1 was reanalyzed. This analysis was to determine if the as-built sedimentation basin had sufficient storage volume to adequately detain the 25-year, 6-hour storm event and to pass the 100-year, 6-hour storm event. Two computer

conductivity at 2.18 dS/m and the lowest percentage of organic matter at 0.93 (as compared to 2.59 and 3.77 percent for the Neskahi and Yarts, respectively). The waste rock material also exhibited a higher percentage of sand in its texture. The Neskahi soil was most limited by its nitrogen content (0.96 ppm) and the Yarts by its phosphorus content (0.87 ppm), while the reclaimed soils demonstrated a well-balanced nitrogen:phosphorus signature. The waste rock material is more limited in available potassium (54.23 ppm) than the native soils while exhibiting higher concentrations of calcium and magnesium (18.04 and 5.48 meq/L, respectively). In all other parameters considered, each soil exhibited results similar in value and nature. The functional value of the waste rock material is most limited by its low percentage of organic matter and its higher sand composition. The Neskahi may be possibly limited by it low nitrogen content and the Yarts by its low phosphorus content and potassium concentration (0.04 meq/L).

106.6 - Plan for protecting and redepositing existing soils

Thickness of soil material to be salvaged and stockpiled: *Approximately 5 to 10 ~~7 to 15~~ inches*
Portal Area from which soil material can be salvaged: (show on map) *Approximately 4.58 ~~7.3~~ acres*
Soil salvaged from waste rock piles ***Approximately 9,000 cu. yds.***
Volume of soil to be stockpiled: *Approximately 4,500 cu. yds.*
(cross reference with item 106.5 (a))

Describe how topsoil or subsoil material will be removed, stockpiled and protected.

Soils Available for Salvage and Potential Salvageable Quantities

The primary areas that will be disturbed within the project area (i.e., portal and evaporation pond areas) can be broadly defined by two major landforms and their associated soils. The first group consists of Badlands, Rock Outcrops, benches, and mesas and the generally shallow soils associated with those landforms. The second group consists of deep, well-drained alluvial soils that originated from the erosion of the first group over time. The alluvial soils, which are made up of the Neskahi Series subunit of the Badland-Rock Outcrop complex, and the Yarts fine sandy loam subunit of the Glenberg Series, are good candidates for topsoil salvage and borrow due to their greater thickness.

Figure 7 presents the topsoil-stripping map for the portal area. As shown, the topsoil in the southern portion of the proposed disturbed area was washed away during a flood, therefore, there is strippable soil in that area. The central portion has between 5 and 10 inches of strippable soils. Most of these soils are of the Neskahi Series. If an average soil depths of 7.5 inches is assumed over the 7.3-acre area of native soils, the volume of soil available for stripping and stockpiling would total 7,400 bank cubic yards (bcy). However, topsoil will not be stripped from buffer areas next to the drainages or the topsoil stockpile areas. Soil stripping efficiencies will also be relatively low in those areas where the soil is thinner or intermixed with gravel and rock. Given these considerations, a strippable volume of approximately 4,500 bcy is projected for the 4.58 acre area. These soils will be placed in the Topsoil Stockpiles (TS) (see Figure 5). The stockpile height was driven by land area limitations and will have a maximum height of about 10 feet.

The upper six inches of soil from the reclaimed waste rock area will also be salvaged and placed in the southwest portion of the Topsoil Stockpile. The revegetated waste rock material is not as good a resource as the native soils; however it does support vegetation, as evidenced by the revegetation success to date. The volume of soil available for stripping and stockpiling from the reclaimed 11-acre waste rock area is also estimated to be 9,000 bcy.

The clay liner will be reconstructed by ripping, moisture conditioning, and compacting the underlying clay materials. The clay material, although containing vegetation, was determined to be unsuitable for

2.2 Concrete Pads and Foundations

Concrete pads and foundations from the buildings will be broken up into five-foot-diameter sections or smaller and either buried nearby at a depth of at least three feet or hauled into and disposed of within the mine workings. Under Utah regulations, the concrete with incidental rebar or wire mesh meets the definition of inert waste and does not require disposal in a permitted landfill. Concrete pads for the buildings are assumed to be 4 and 6-inches thick with wire mesh reinforcement. The concrete pad and sidewalls for the ore slots will be left in place and buried beneath the reclaimed waste rock area. Unit prices for breaking concrete and disposing of it onsite are listed in Part I.C and D of Appendix A.

3.0 INFRASTRUCTURE

Table 3 presents the estimated costs for removing mine infrastructure including abandonment of the well and septic system and removal of fencing, oil and fuel storage tanks, the water tank, and the sand trap. Buried utility lines (power, water, septic, and communication lines) will be left in place.

3.1 Well Abandonment

Well abandonment costs include pulling the pump and water pipe from the well and grouting the well (see Part II.A and B in Appendix A) in accordance with State requirements. Removal and disposal of the well house is included in Section 2 above. Septic system abandonment will include abandoning two manholes and filling the septic tank (estimated to be 25,000 gallons) with fine-grained, sandy mine waste followed by a cap of concrete. Unit prices for septic system abandonment are presented in Part II.C, D, and E of Appendix A.

3.2 Fence Removal

Fence removal includes a chain link fence around Storage Yard 1 and three-strand barbed wire fence around the septic system and evaporation pond. Unit prices for fencing demolition are presented in Part II.F of Appendix A.

3.3 Storage Tank and Sand Trap Removal

Storage tank removal includes the removal and disposal of one 5,000-gallon diesel tank from the generator area (AST #2), one 500-gallon gasoline tank (AST #1) and one 5,000-gallon diesel tank from the fueling station (AST #3), two 850-gallon diesel tanks for use with the stationary generators (AST #4 & #5), one 110-gallon diesel tank for use with the mobile generator (AST #7), a 1,000-gallon used oil tank (AST #6), a 500-gallon motor oil tank (AST #8), a 500-gallon hydraulic oil tanks (AST #9), a 350-gallon rock drill oil tank (AST #10), and a 350-gallon gear oil tank (AST #11). ~~four 65 to 100-gallon oil storage tanks from the maintenance shop, and one 5,000-gallon water tank located at Vent Hole 4.~~ The RSMeans removal and disposal costs (see Part II.G and H, respectively, of Appendix A) are based on a 100-mile round trip, which is consistent with disposal/recycling at Hanksville, Utah. The sand trap removal is based on RSMeans removal cost of an oil interceptor (sand trap) with up to 100 gpm capacity.

4.0 MINE OPENINGS

Table 4 provides estimated costs for sealing and covering the vent holes and portals. The cost estimate includes the sealing and closure of eight vent holes (existing Vent Holes 1, 3, 4, 5, and 6

TABLE 1
PROPOSED SURFACE DISTURBANCE

Description (a)	sq feet	Previously Disturbed (acres)		Previously Undisturbed (acres)
Portals, Adits, and Ventholes				
Main Portal Area	31334	0.72		0.00
South Adit Pad (40 x 85)	3400	0.08		0.00
North Adit Pad (20 x 35)	700	0.02		0.00
VH-1 Pad (30 x 94)	2820	0.06		0.00
VH-3 Pad (21 x 88)	1848	0.04		0.00
VH-4 Pad (62 x 86)	5332	0.12		0.00
VH-5 Pad (32 x 100)	3200	0.07		0.00
VH-6 Pad (48 x 101)	4848	0.11		0.00
VH-7 Pad (50 x 90)		0.00	4500	0.10
VH-8 Pad (50 x 90)		0.00	4500	0.10
VH-9 Pad (50 x 90)		0.00	4500	0.10
Subtotal		**1.23**	**4500.00**	**0.31**
Waste Rock Area (WRA)	331827	**7.63**		**0.00**
Roads (b)				
Portal Access Road (40 x 357)	14280	0.33		0.00
South Adit Road (16 x 672)	10752	0.25		0.00
North Adit Road (16 x 664)	10624	0.24		0.00
VH-1 Access Road (16 x 589)	9424	0.22		0.00
VH-3 Access Road (16 x 551)	8265	0.19		0.00
VH-5 Access Road (16 x 293)	4688	0.11		0.00
VH-6 Access Road (16 x 297)	4752	0.11		0.00
VH-7 Access Road (16 x 168)		0.00	2688	0.06
VH-8 Access Road (16 x 964)		0.00	15424	0.35
VH-9 Access Road (16 x 18)		0.00	288	0.01
Evaporation Pond East Road (16 x 779)	12464	0.29		0.00
Subtotal		**1.73**		**0.42**
			2.15	
Dewatering System				
Evaporation Dam and Pond	1104392	22.22		0.00
Waterline Corridor (20 x 2,819) = total disturbed area	56380	1.30		0.00
Subtotal		**23.52**		**0.00**
Diversion Channels & Sedimentation Ponds (c)				
WRA Diversion Channel (permanent)	65150	1.50		0.00
County Road Channel (temporary)	20364	0.47		0.00
County Road Sediment Basin (temporary)	8970	0.21		0.00
Subtotal		**2.17**		**0.00**

TABLE 1 (continued)
PROPOSED SURFACE DISTURBANCE

Structures and Buildings				
Shop/Warehouse	15656	0.36		0.00
Mine Office/Dry	11628	0.27		0.00
Parking Lot	20475	0.47		0.00
Leach Field	12131	0.28		0.00
Subtotal		**1.38**		**0.00**
Yards and Storage Areas				
Storage Yard 1 (Laydown Area)	7325	**2.00**		0.00
Fueling Station	3172	0.07		0.00
Generator Area	2520	0.06		0.00
Subtotal		**2.13**		**0.00**
Stockpile Areas				
OS Ore Stockpile and Slots Area	50709	1.17		0.00
Northern Existing Stockpile	71804	1.65		0.00
Southern Existing Stockpile	122372	2.81		0.00
TS Topsoil Stockpile	42836	0.99		0.00
Subtotal		6.62		0.00
Common Areas				
Eastern Disturbed Area Common Areas	125305	2.88		0.00
Western Disturbed Area Common Areas	154632	3.56		0.00
	Subtotal	6.44		
TOTAL		52.85		0.73
GRAND TOTAL OF ALL DISTURBED AREAS			**53.58**	

Notes:

(a) The surface acres of larger disturbances were planimetered from Figures 5 and 6. The measured dimensions in feet, shown in parenthesis, were used to calculate the surface acres of the smaller disturbances.

(b) The existing county road and the existing BLM/State road that extends from the county road to the top of the mesa were not included as surface disturbance because these roads are pre-existing and will remain in place after the mine is closed and reclaimed.

(c) The WRA permanent diversion channel will remain intact as part of the reclaimed topography.

(d) The common areas include the areas around the buildings and stockpiles that do not have a specified use.

TABLE 2
STRUCTURES AND FOUNDATIONS

Building/Structure Demolition

Building/ Structure	Length	Width	Actual Square Footage	Height	Volume	Building Levelling Cost (a)	On-site Disposal Unit Cost (b)	Estimated Cost
	(ft)	(ft)	(ft2)	(ft)	(cf)		($/cyf)	($)
Mine Office/Dry	~~60~~	~~40~~	11628	15	174,420	$5,000	$7.75	$21,688
Shop/Warehouse	~~50~~	~~30~~	15656	20	313,120	$5,000	$7.75	$34,959
Well House	14	6		10	840		$7.75	$241
Vent Hole Diffusers (c)	5	6		64	1,920		$7.75	$551
			Subtotal	**490,300**			**$57,440**	

Concrete Pads, Foundations, and Walls

Building/ Structure	Length	Width	Area	Pad Thickness	Volume	Break Concrete Unit Cost	On-site Disposal Unit Cost	Estimated Cost (d)
	(ft)	(ft)	(ft2)	(in)	(cy)	($/cy)	($/cy)	($)
Mine Office/Dry	~~60~~	~~40~~	11628	4	143.6	$118.00	$7.75	$18,052
Shop/Warehouse	~~50~~	~~30~~	15656	6	289.9	$118.00	$7.75	$36,458
Well House	No Concrete Pad							$0
				Subtotal	**433.5**			**$54,510**

Total Cost Estimate for Demolition and Disposal of Structures and Foundations: $111,950

Notes:

(a) The volume of demolished materials was estimated to be 1/3 of the intact, in place volume of the building or structure.

(b) The estimated cost includes building leveling and on-site disposal costs.

(c) At each vent hole, a 4-foot high diffuser and approximately 4 feet of casing will be removed and disposed. The 8-foot

(d) The estimated cost includes concrete break-up and on-site disposal costs.

TABLE 3
INFRASTRUCTURE

Water Well	Quantity	Unit	Unit Cost	Estimated Cost
Pump (Removal)	1	ea	$1,625.00	$1,625
Grout Screen/Casing	500	lf	$15.02	$7,510
			Subtotal	**$9,135**

Septic System				
Pump out and Transportation	125	mi	$15.03	$1,879
Disposal	23	kgal	$1.90	$44
Manholes	2	ea	$194.00	$388
Tank - Mine Waste Fill (a)	23000	gal	$0.22	$5,023
Tank - Concrete Cap, material (a)	10	cy	$85.50	$855
			Subtotal	**$8,189**

Fencing Removal				
Septic System Fencing	441	lf	$1.59	$701
Evaporation Pond Fencing	4230	lf	$1.59	$6,726
Storage Yard Fencing	363	lf	$3.05	$1,107
			Subtotal	**$8,534**

Oil/Fuel/Water Storage Tank and Sand Trap Removal				
1,000 gal Waste Oil Tank (AST #6)				
- Pump out	1000	gal	$0.46	$460
- Transport	125	mi	$1.78	$223
- Disposal	1000	gal	$3.29	$3,290
- State Taxes/Fees	1000	gal	$1.06	$1,060
5,000 gal diesel/gas/water tanks (AST #2 & #3)				
- Load onto Trailer (b)	2 ~~3~~	ea	$158.30	$317
- Haul and Disposal (c)	2 ~~3~~	ea	$690.00	$1,380
~~65 to 100 gal oil tanks and~~ 500-gal unleaded gasoline ~~diesel~~ tank (AST#1)				
- Load onto Trailer (b)	1 ~~5~~	ea	$79.15	$79
- Haul and Disposal (d)	1 ~~5~~	ea	$138.00	$138
850 gal diesel day tanks (AST #4 & #5)				
- Load onto Trailer (b)	2	ea	$31.66	$63
- Haul and Disposal (d)	2	ea	$138.00	$276
110 gal diesel tank (AST #7)				
- Load onto Trailer (b)	1	ea	$79.15	$79
- Haul and Disposal (d)	1	ea	$138.00	$138
500 gal motor oil tank (AST #8)				
- Load onto Trailer (b)	1	ea	$79.15	$79
- Haul and Disposal (d)	1	ea	$138.00	$138
500 gal hydraulic oil tank (AST #9)				
- Load onto Trailer (b)	1	ea	$79.15	$79
- Haul and Disposal (d)	1	ea	$138.00	$138
350gal rock drill oil tank (AST # 10)				
- Load onto Trailer (b)	1	ea	$79.15	$79
- Haul and Disposal (d)	1	ea	$138.00	$138
350gal gear oil tank (AST#11)				

TABLE 3 (cont.)
INFRASTRUCTURE

Water Well	Quantity	Unit	Unit Cost	Estimated Cost
- Load onto Trailer (b)	1	ea	$79.15	$79
- Haul and Disposal (d)	1	ea	$138.00	$138
Remove Sand Trap	1	ea	$599.07	$599
			Subtotal	$8,970

Total Cost Estimate for Demolition of Infrastructure: $34,828

Notes:

(a) Septic tank to be filled with 23,000 gallons (114 cy) of fine-grained mine waste and capped with 10 cy of cement.

(b) Cost to prepare and load tanks onto trailers was estimated to be 2 hours per 5,000-gal. tank and 1 hour per ~~65-350~~-to 500-gal. tank and includes an equipment operator, 0.5 laborer, and front end loader (See RSMeans Crew B-10T).

(c) Unit cost is $690 per tank for hauling up 100 miles round-trip.

(d) The hauling costs for ~~all four 65 to 100 gal. oil tanks and~~ the 110 gal, 350 gal, and 500 gal tanks was estimated to be equivalent to be one-fifth of a 5,000 gal. tank.

TABLE 4
MINE OPENINGS

Vent Holes	Number of Ventholes	Quantity	Unit	Unit Cost	Estimated Cost
Excavate around vent hole (8 bcy/vent) (a)	8	0.14	day	$1,326.80	$1,493
Backfill vents					
Load fill material into trucks (b, c)	8	10.0	hour	$90.00	$7,200
Haul and dump fill material near vent hole (d)	8	30.0	hour	$85.00	$20,400
Cleanup and removal cost	8	4.0	hour	$85.00	$2,720
Backfill over cover (36 sf x 6' D + 28 sf x 4' D)	8	12.2	cy	$0.99	$97
				Subtotal	**$31,909**

Portals	Number of Portals	Quantity	Unit	Unit Cost	Estimated Cost
Backfill (fe)	5	225.0	cy	$4.82	$5,423
				Subtotal	**$5,423**

Total Cost Estimate for Plugging of Mine Openings: $37,332

Notes:

(a) Assume that a hydraulic excavator can excavate around a vent hole in 45 minutes and tram to next vent hole (ave. 3/4-mile) in 15 minutes. Allow 1 hour for initial tramming from main site to first vent hole.

(b) Material volume based on 700-foot deep circular vent hole of 6-foot diameter.

(c) Loading duration based on 15 cubic feet per ton of material, 22 tons per load, and 10 minutes to load each truck.

(d) Hauling duration based on 30 minutes to transfer material from loading area to vent hole.

(e) Volume of backfill required for portal openings calculated based on the opening size of 8' high x 12' wide x 30' deep and a cover extending 2 ' above and coming out and to the sides at a 3H:1V slope to create a natural appearing talus slope. The volume of the backfill inside the mine opening is 8' x 12' x 30' = 2880 cf or approximately 107 cy. The volume of the backfill directly in front of the opening is 1/2 x 10' x 20' x 12' = 1200 cf or approximately 44 cy. The volume of backfill to either side of the opening is 1/2 x 1/2 x 10 x 20 x 20 = 1,000 cf or approximately 37 cy. The total volume of fill is 107 + 44 + (2 x 37) = 225 cy.

TABLE 5
GENERAL EARTHWORK

Bulk Grading/ Excavation	Volume (a) (bcy)	Unit Cost ($/bcy)	Estimated Cost ($)
Waste Rock Area - to 4:1 slopes (a)			
65' dozer push, -25% grade	18,306	$0.91	$16,658
Evaporation Pond Breach - to 2.5:1 slopes (a)			
Dam - 160' dozer push, -25% grade	4,000	$2.75	$11,000
Dam - 180' dozer push, level grade	6,000	$4.63	$27,780
Dam - 450' scraper haul	2,000	$4.03	$8,060
Overflow/Dike - 50' push	295	$1.88	$554
Evaporation Pond Sediment			
Removal - 3,000' scraper haul	15,700	$3.99	$62,643
Push into Ventholes - 50' push	15,700	$1.17	$18,369
Load into Mine Trucks (d)	14,700	$0.50	$7,350
Haul in Mine Workings - ¼ mile RT (d)	14,700	$3.62	$53,214
		Subtotal	**$205,628**

Grading and Ripping	Area (b) (ac)	Rough Grade and Scarification Unit Cost ($/ac)	Estimated Cost ($)
Evaporation Pond and Dam (excluding breach slopes)	21.3	$978.00	$20,871
Evaporation Pond East Road	0.3	$978.00	$280
Evaporation Pond South Road	1.3	$978.00	$1,274
Waste Rock Area - Final Configuration	9.0	$978.00	$8,794
Main Portal Access Road	0.3	$978.00	$321
Vent Hole and Adit Pads	0.8	$978.00	$802
Vent Hole and Adit Roads	1.5	$978.00	$1,505
Storage Yards	2.1	$978.00	$2,084
Stockpile Areas	6.6	$978.00	$6,472
Parking, Buildings, Leach Field Area	1.4	$978.00	$1,347
Temporary Drainages	0.7	$978.00	$660
Common Areas ~~at South Portal~~	6.4	$978.00	$6,297
Total	**51.8**	**Subtotal**	**$50,707**

Topsoil Placement	Area (b) (c)	Depth	Volume	Unit Cost	Estimated Cost
Dozer	(ac)	(inches)	(bcy)	($/bcy)	($)
Main Portal Access Road	0.3	6	265	$0.50	$132
Storage Yards	2.1	6	1,719	$0.50	$859
Stockpile Areas	6.6	6	5,338	$0.50	$2,669
Parking, Buildings, Leach Field Area	1.4	6	1,111	$0.50	$556
Temporary Drainages	0.7	6	544	$0.50	$272
Common Areas ~~at South Portal~~	6.4	6	5,194	$0.50	$2,597
Scraper					
Waste Rock Area - Final Configuration	9.0	6	7,254	$3.49	$25,315
Main Portal Area	0.7	6	581	$3.49	$2,029
Totals	**27.3**		**22,006.1**	**Subtotal**	**$34,429**

TABLE 5 (continued)
GENERAL EARTHWORK

Grading and Pocking	Estimated Time Required (day)	Grading and Pocking Cost ($/day)	Estimated Cost ($)
Grade Waterline Corridor	4.0	$1,326.80	$5,307
Pock Breach Slopes in Dam	1.5	$1,326.80	$1,990
Pock Backfilled Portals	0.5	$1,326.80	$663
		Subtotal	**$7,961**

Riprap	Estimated Time Required (hr)	Unit Cost ($/hr)	Estimated Cost ($)
Push from upstream Dam Face, 300-hp Dozer	4.0	$241.31	$965
Placement into Breach, Loader, 2.5 to 3 cy bucket	8.0	$185.90	$1,487
		Subtotal	**$2,452**

Sediment Control	Estimated Required Length (lf)	Volume (cy)	Unit Cost ($/lf)	Estimated Cost ($)
Earthen Berm, 2 feet high, Loader, 0.3 cy/lf	1000	300	$0.50	$150
			Subtotal	**$150**

Total Cost Estimate for General Earthwork: $301,328

Notes:

(a) See Appendix B for cut and fill volume and push length calculations for the Waste Rock Area and the Evaporation Pond Dam.

(b) The surface areas were planimetered from Figures 5 and 6. The areas of the WRA and Stockpile Area Common Areas were adjusted for final reclaimed configuration. The area of the permanent WRA diversion channel was not included since it will not be reclaimed. The area of the evaporation pond south road was included since it will be reclaimed, but was not a new disturbance (i.e. it is a pre-existing road).

(c) Top soil placement is not required on the secondary roads and pads because the topsoil was not removed.

(d) 1,000 CY of sediment will remain in venthole shafts

TABLE 6
REVEGETATION

Area to be revegetated	Grade	Seed Mix (a)	Area (b)	Seed Unit Cost	Application Unit Cost (c)	Estimated Cost
			(ac)	($/ac)	($/ac)	($)
Evaporation Pond Breach, 2H:1V slope	Steep	4	0.9	$327	$682.40	$908
Evaporation Pond and Dam, 3H:1V slope or flatter	Gentle	4	21.3	$327	$200.00	$11,225
Evaporation Pond East Road	Gentle	4	0.3	$327	$200.00	$151
Evaporation Pond South Road	Gentle	3	1.3	$420	$200.00	$808
Sealed Portals (5), 2H:1V slopes	Steep	1	0.1	$332	$682.40	$101
Waste Rock Area, 3H:1V slope and flatter	Gentle	1	9.0	$332	$200.00	$4,788
Main Portal Area	Gentle	1	0.7	$332	$200.00	$383
Main Portal Access Road	Gentle	1	0.3	$332	$200.00	$175
Vent Hole Pads and Roads (VH-5, 6, 7, ~~&~~ 8, & 9)	Gentle	2	1.1	$297	$200.00	$547
Vent Hole Pads and Roads (VH-1, 3, & 4)	Gentle	3	0.6	$420	$200.00	$372
Adit Pads	Gentle	3	0.1	$420	$200.00	$58
Adit Roads	Gentle	3	0.5	$420	$200.00	$305
Storage Yards	Gentle	1	2.1	$332	$200.00	$1,134
Stockpile Areas (Ore & Topsoil)	Gentle	1	2.2	$332	$200.00	$1,145
Existing Ore Stockpile Areas	Gentle	3	4.5	$420	$200.00	$2,769
Parking, Buildings, Leach Field Area	Gentle	1	2.1	$332	$200.00	$1,134
Temporary Drainages	Gentle	1	1.4	$332	$200.00	$733
Common Areas ~~below the WRA~~	Gentle	1	6.4	$332	$200.00	$3,425
		Total	54.9		Subtotal	$30,161

Total Cost Estimate for Revegetation: **$30,161**

Seed Mixes

No.	Name	Unit Cost
1	**Greasewood Seed Mix**	**$332 / acre**
2	**Salt Desert Shrub Seed Mix**	**$297 / acre**
3	**Blackbrush Seed Mix**	**$420 / acre**
4	**Evaporation Pond Seed Mix**	**$327 / acre**

Notes:

(a) Four unique seed mixes and micorrhizal fungi will be applied to different areas of the mine site in accordance with the revegetation plan.

(b) The surface areas were planimetered from Figures 5 and 6. The areas of the WRA and Stockpile Area Common Areas were adjusted for final reclaimed configuration. The area of the permanent WRA diversion channel was not included since it will not be reclaimed. The area of the evaporation pond south road was included since it will be reclaimed, but was not a new disturbance (i.e. it is a pre-existing road). The waterline corridor was not included because it will not be seeded.

(c) Gentle slopes of 3H:1V or flatter will be seeded with a dozer equipped with rippers and a broadcast seeder. Steep slopes of 2H:1V will be broadcast seeded and raked by hand.

TABLE 7
MOBILIZATION/DEMOBILIZATION

Mobilization/Demobilization	Number of Units	First 25 Miles Unit Cost (a)	Additional Mileage Cost (a,b)	Estimated Cost (c)
Heavy Equipment	(each)	($)	($)	($)
300 HP Dozer	1	$305	$610	$1,830
80 HP Dozer	1	$210	$420	$1,260
15 CY Self-propelled scraper	2	$370	$740	$4,440
80 HP Hydraulic Excavator (3/4 cy/36-inch bucket)	1	$210	$420	$1,260
125 HP Wheel Front End Loader (2.5 CY Bucket)	1	$210	$420	$1,260
			Subtotal	**$10,050**

Mobilization/Demobilization	Number of Units	Travel time (one-way)	Unit Cost	Estimated Cost (e)
Trucks (d)	(each)	(hr)	($/hr)	($)
12-cy Dump Truck, 16-ton	2	3	$108.83	$1,306
Truck Mounted Gas Welding Machine	1	3	$87.77	$527
Drill rig	1	3	$141.05	$846
Pick-up Truck, 4WD, 3/4-ton	2	3	$53.87	$646
			Subtotal	**$3,325**

Total Cost Estimate for Mobilzation/Demobilization of Equipment: $13,375

Notes:

(a) Unit costs are for mobilization or demobilization (one or the other).

(b) The cost for haul distances greater than 25 miles is 10% of the first 25 miles unit cost for every 5 miles over 25 miles. The average haul distance to the site was calculated to be 125 miles, one way. (125 miles-25 miles/5 miles) x 10% = 200%

(c) The estimated cost includes both mobilization and demobilization for the first 25 miles and additional mileage.

(d) Mobilization and Demobilization costs for the trucks are estimated based on three hours of the crew and vehicle cost.

(e) The estimated cost includes both mobilization and demobilization.

TABLE 8
SUPERVISION, CONSTRUCTION FACILITIES, AND MONITORING

Description	Number of Units	Quantity (a)	Unit Cost	Estimated Cost
Supervision and Construction Facilities (e)	(ea)	(wk)	($)	($)
Field Superintendent	1	4	$2,225	$8,900
Truck	2	4	$143	$1,140
Generator, Gas-engine, 10 kW	1	4	$75	$300
Portable Toilets	2	4	$41	$324
Fuel for trucks (b)	2	4	$90	$720
Fuel for generator (c)	1	4	$140	$562
			Subtotal	**$11,946**

Description	Number of Units	Quantity (d)	Unit Cost	Estimated Cost
Monitoring	(day)	(ea)	($)	($)
Semi-Annual On-Site Review	1	6	$445	$2,670
Annual Report Preparation	5	3	$445	$6,675
			Subtotal	**$9,345**

Total Cost Estimate for Supervision, Construction Facilities, and Monitoring: $21,291

Notes:

(a) The estimated time for reclamation of the site is four weeks of construction activities and three years of monitoring.

(b) Fuel usage for the trucks was based on 90 miles of usage per day, 5 days a week, 15 mpg, and $3.00 per gallon.

(c) Fuel usage for the generator was based on 8 hours per day, 5 days a week, 1.17 gal/hr, and $3.00 per gallon.

(d) The estimated time of reclamation monitoring is three years. On-site reviews will be conducted semi-annually and reports will be prepared annually.

(e) Existing facilities will be used for temporary field office and equipment laydown.

TABLE 9
COST ESTIMATE SUMMARY

Item	Cost Estimate
STRUCTURES AND FOUNDATIONS	$111,950
INFRASTRUCTURE	$34,828
MINE OPENINGS	$37,332
GENERAL EARTHWORK	$301,328
REVEGETATION	$30,161
MOBILIZATION/DEMOBILIZATION	$13,375
SUPERVISION, CONSTRUCTION FACILITIES, AND MONITORING	$21,291
CONTINGENCY (10%)	$55,026
ESCALATION, 5 YEARS [(a)]	$103,246
GRAND TOTAL FOR SITE RECLAMATION:	**$708,537**

Notes:
(a) Based on an inflation rate of 3.2%

APPENDIX B
VOLUME AND AVERAGE PUSH DISTANCE CALCULATIONS

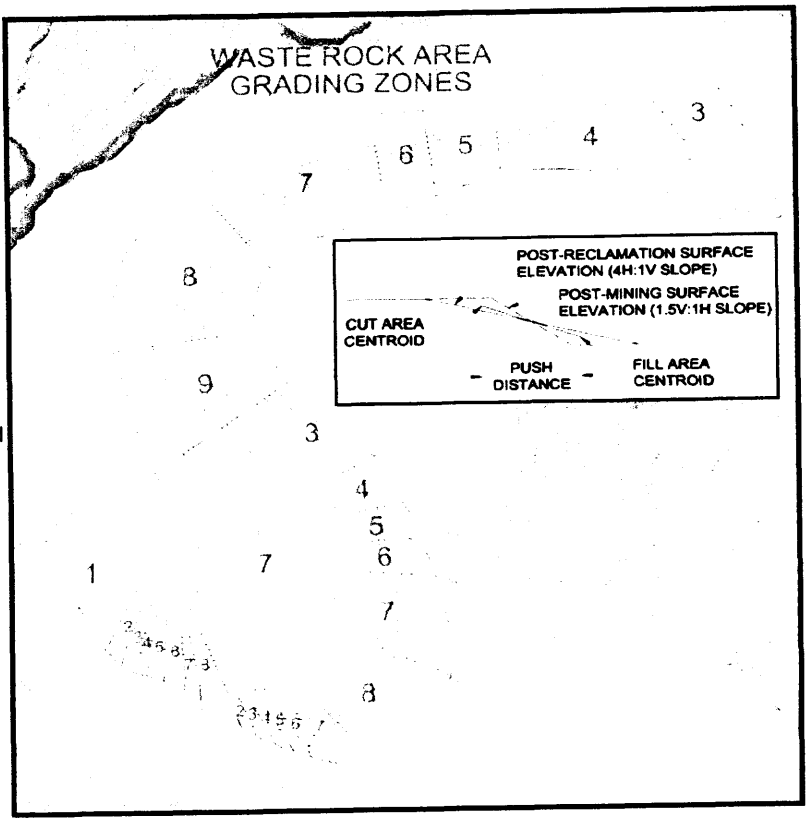
WASTE ROCK AREA

Elevation Change (# of 5' contours)	1	2	3	4	5	6	7	8	9
Elevation Change (ft)	5	10	15	20	25	30	35	40	45
Push Distance (ft)	9.2	18.3	27.5	36.7	45.8	55.0	64.2	73.3	82.5
Average length of cut section (ft)	108	24	174	262	135	131	461	278	109
Volume of Section (cy)	31	28	453	1211	979	1367	6534	5148	2556

Volume Weighted Average Push Distance (ft): **65**

Total Volume of Cut/Fill (cy): **18,306**

The Waste Rock Area was divided into grading zones based on the change in elevation (see figure on right). The numbers inside each grading zone indicate the number of 5 foot contour lines contained in that zone. The push distance was calculated as the horizontal distance from the centroid of the cut zone to the centroid of the fill zone. The push distance for grading the 1.5:1 slope (during mining) to a 4:1 slope (after reclamation) is 9.167 feet for every 5 vertical feet of elevation change. The approximate volumes of each grading zone were estimated based on the cut/fill cross-section area and the average width of the grading zone. The volumes were verified with an AutoCAD calculation based on final and reclaimed contours. A volume weighted average push distance was calculated from the push distances and approximate volumes of each grading zone.



APPENDIX B (continued)
VOLUME AND AVERAGE PUSH DISTANCE CALCULATIONS

EVAPORATION POND DAM

Total Volume of Dam Cut/Fill (cy): 12,000 (Based on AutoCAD calculations[a])

Dozer Push, -25% Grade

Volume to pushed from dam notch to upper bench of dam, -25% grade =	4,000	cy
Average push distance from breach to bench, -25% grade =	**160**	**ft**

Dozer Push, Level Grade

Volume to pushed from notch to upper bench of dam, level ground =	4,000	cy
Average push distance from breach to upper bench =	165	ft
Volume to pushed from notch to evaporation pond, level ground, 300 ft push max =	2,000	cy
Average push distance from breach to evaporation pond =	210	ft
Volume weighted average dozer push distance, level ground =	**180**	**ft**

Scraper Haul, Level Grade

Volume to pushed from dam notch to bench, downhill =	2,000	cy
Average push distance from breach to bench =	**450**	**ft**

Notes

a

The contours of the reconstructed dam were drawn, based on dam design and the reclaimed contours were assumed to be the same as the existing contours. Surfaces were created based on both sets of contours and AutoCAD was used to calculate the cut and fill volume. The calculated cut and fill volume was 11,920 cubic yards.

APPENDIX A
MEANS COST DATA

Listed unit costs are from the primary reference except where noted otherwise.

Primary Reference:

- 2006 RSMeans Heavy Construction Cost Data, 20th Annual Edition, Kingston, MA.

Secondary References:

- 2005 RSMeans Environmental Remediation Cost Data – Unit Price and Assemblies, 11th Annual Edition, Azimuth Group, Ltd. and ECHOS, LLC.
- 2006 RSMeans Site Work and Landscape Cost Data, 25th Annual Edition, Kingston, MA.
- Caterpillar Performance Handbook, Ed. 29 by Caterpillar Inc., Peoria, IL, 1998.
- Seed and Inoculation Quotes from Granite Seed Company in Lehi, Utah and Maple Leaf Company in Ephraim, Utah.

Part I: Structures and Foundations

A. Building Leveling charges: $5,000 per building,
Quote from: Kirk, Jackson, Jackson Excavation
(435-691-8927)
Quote Provided 5-16-20088/15/08
Add for disposal, ~~on site~~ **underground**
= Crew B-11A, 232 cy/day, $7.75/cy

B. Section 03055 110 Selective Concrete Demolition (pg. 136)
0060: Break up into small pieces, Average reinforcing
= Crew B-9, 16 cy/day, $118/cy

C. Section 02220 130 Bldg. Footings and Foundations Demolition (pg. 25)
4200: Add for disposal, ~~on site~~ **underground**
= Crew B-11A, 232 cy/day, $7.75/cy

B. SITE DESCRIPTION AND OPERATIONS

1. Facility Location, Layout, and Operations

The Tony M Mine facility is located in Garfield County, Utah on the south half of Section 16 and the north half of Section 21, Township 35 South, Range 11 East, Garfield County, Utah 84726; approximately 2.25 miles east of Utah State Highway 276 (see Figure 1). Plateau Resources was the most recent operator of the Tony M Mine, and developed over 17 miles of underground workings during the early 1980s. The Tony M portals and workings are on state land. The mine shop, change house, and surface buildings were on Bureau of Land Management (BLM) land. Mine operations ceased, and the surface facilities and evaporation pond structure underwent reclamation. DUSA purchased the claims and State Mineral Lease associated with the former Tony M Mine, and had previously acquired the Bullfrog resource located further to the north.

To support mining operations the facility has installed a 500-gallon above ground storage tank (AST) for unleaded gasoline and two 5,000-gallon ASTs for diesel fuel. In addition, two generators with 850-gallon diesel day tanks are used at the facility for energy generation. The facility plans to install an additional generator when power demands exceed the existing generation capacity. Fuel will be supplied to this additional generator by the existing diesel fuel tanks attached to the existing generators. The facility is also planning to purchase a 1,000-gallon used oil tank. Up to 2,000-gallons of ~~antifreeze and~~ oil products (i.e., motor oil, hydraulic oil, gear oil, ~~and used oil~~) will be stored at the maintenance shop within the shop floor and used-oil storage area. ~~With the exception of the used oil tank, t~~These products ~~will typically be~~ stored **in 350-gallon to 500-gallon** ~~smaller containers of less than 100 gallons, drums, and small~~ containers. A 110-gallon diesel AST is connected to a generator that is used to operate pumps and supply electrical needs at remote locations at the facility. The layout of the facility, including the location of the emergency power generator(s) and ASTs are provided in Figure 2. Photographs of the mine surface facilities area and associated drainages are included as Appendix C.

AST #1 is a 500-gallon AST containing unleaded gasoline used for fueling the facilities mobile equipment fleet. AST #1 is located within the bulk fuel storage area and is installed on a concrete pad which slopes towards a secondary containment bay. AST #1 is equipped with a refueling port (which remains locked except during refueling operations), a vent pipe, and a refueling nozzle on the tank. AST #1 is a double-walled AST and has been equipped with a Veeder Root TLS-300 leak detection system. This tank was manufactured by Modern Welding Company and was built per Underwriters Laboratories (UL) 142 standard for double wall design; specifications are included in Appendix D.

ASTs #2 and #3 are 5,000-gallon ASTs containing diesel fuel used for fueling the facilities mobile equipment fleet and to supply diesel fuel to the two 1,000 kW generators. ASTs #2 and #3 are also located within the bulk fuel storage area and are installed on the same concrete pad which slopes towards a secondary containment bay. ASTs #2 and #3 are equipped with a refueling port (which remains locked except during refueling operations), a vent pipe, and a refueling nozzle on the tank. ASTs #2 and #3 are double-walled ASTs and have been equipped with a Veeder Root TLS-300 leak detection system. These tanks were manufactured by Modern Welding Company and were built per UL 142 standard for double wall design; specifications are included in Appendix D.

ASTs #4 and #5 are double-walled 850-gallon diesel fuel day tanks located directly behind the generator station on a concrete pad. The concrete pad has 12" tall walls built around the pad that provide secondary containment. ASTs #4 and #5 are equipped with a normal and emergency vent pipe. These tanks are designed to maintain a supply of fuel through the use of a locally mounted pump, motor and internal float switches to the two 1,000 kW Cummins Generators. These tanks were manufactured by Engine and Compressor Accessories and were built per UL 142 standard for double wall design; specifications are included in Appendix D.

The facility plans to purchase a third 1,000kW Cummins Generator which will also be connected to ASTs #4 and #5.

~~AST #6 has not yet been installed at the facility but will likely be a 1,000-gallon AST for used oil. This AST will contain a vent pipe, overflow alarm, supply and return lines and a refueling nozzle on the tank. The used oil tank will be located on a concrete pad along the outside wall of the shop. The pad will be equipped with a low wall or curbing that is designed to contain the entire contents of the tank if a leak occurs. This tank has not been purchased; however, it is recommended that this tank be a ConVault or Modern Welding Company (or a tank that meets equivalent standards) 1,000-gallon, double walled, tank per the specifications included in Appendix D.~~

AST #6 is a 1,000-gallon AST for used oil.

AST #7 is a 110 gallon tank that travels with the 230 kW generator on the facility that was purchased in July 2005. Based on a field inspection, it appears that this tank is double walled. AST #7 is equipped with ventilation piping and is UL 142 listed and NFPA 37 compliant. Specifications for similar Cummins tank systems are included in Appendix D. This generator is hauled around the surface mine facilities to operate pumps and supply other electrical needs to remote locations. It is recommended that small portable spill kits be carried with the generator when it is transported and when it is in operations at remote locations. It is also recommended that this AST is housed within a covered structure with a concrete floor when not in use.

ASTs #1, #2, and #3 are located in the bulk fuel storage area. The bulk fuel storage area consists of a 25'x35' concrete pad that supports the storage tanks. The concrete pad slopes towards a concrete secondary containment reservoir that was constructed to contain an 8,200-gallon fuel spill. The containment reservoir also serves as a landing on which fuel delivery vehicles park when filling AST #1, #2, and #3. Mine vehicles also park within the containment reservoir when fueling.

~~Antifreeze and o~~Oil products (i.e., motor oil, hydraulic oil, gear oil~~, and used oil~~) are stored at the maintenance shop within the shop floor and used-oil storage area. With the exception of the used oil tank, these products are stored in **350- to 500-gallon containers** ~~smaller drums and small containers that are less than 55 gallons in capacity~~; on spill containment pallets. Any spills in the shop area will be contained within the shop walls and will be collected in the waste water treatment system and oil water separator. No water will be discharged from the shop area. Any unused recycled water will be disposed of in propane fired water evaporator. A vendor will periodically pump the used oil tank contents into a tanker truck, which will transport the oil to a recycling facility.

2. Facility Storage

A description of the facility storage tanks is presented below and summarized in Table 1. Specifications of the recommended tanks and appurtenances are provided in Appendix D.

AST #1: AST #1 is a 500-gallon double-walled AST containing unleaded gasoline. The AST is spherical and horizontally situated. The primary tank consists of welded steel plate construction that is compatible with unleaded gasoline. Leak detection is provided between the secondary containment (shell) and the steel tank. A Veeder Root TLS-300 leak detection system monitors the interstitial space between the shell and steel tank for the presence of liquids. Should liquids be detected in the interstitial space by the Veeder Root system, an audible and visual alarm will sound in the instrumentation building which is located within the fenced bulk fuel storage area. AST #1 was manufactured in compliance with Underwriter Laboratories (UL) specifications 142 for above ground fuel storage for flammable and combustible liquids (UL 2002), UL 2085 standard as a fire resistant/insulated and protected tank (UL 1997), and Steel Tank Institute Standard F921 for double-wall aboveground storage tanks (STI 2003).

ASTs #2 and #3: ASTs #2 and #3 are 5,000-gallon double-walled ASTs containing diesel fuel. The ASTs are spherical and horizontally situated. The primary tanks consist of welded steel plate construction that is compatible with diesel fuel. Leak detection is provided between the secondary containment (shell) and the steel tank. A Veeder Root TLS-300 leak detection system monitors the interstitial space between the shell and steel tank for the presence of liquids. Should liquids be detected in the interstitial space by the Veeder Root system an audible and visual alarm will sound in the instrumentation building which is located within the fenced bulk fuel storage area. ASTs #2 and #3 were manufactured in compliance with UL specifications 142 for above ground fuel storage for flammable and combustible liquids (UL 2002), UL 2085 standard as a fire resistant/insulated and protected tank (UL 1997), and Steel Tank Institute Standard F921 for double-wall aboveground storage tanks (STI 2003).

ASTs #4 and #5: ASTs #4 and #5 are double-walled, 850 gallon diesel fuel tanks for two 1,000 kW Cummins generators. The ASTs are rectangular and horizontally situated parallel to each other. The primary tanks consist of welded heavy gauge steel plate construction that is compatible with the diesel fuel held in the tank. The secondary tank is also constructed of heavy gauge steel that would contain 100 percent of a leak from the inner tank. Leak detection is provided between the secondary containment (shell) and the steel tank. The leak detection system and associated alarms were built into the tank by Engine and Compressor Accessories. The alarms are installed and visible in both the generator building and the instrumentation building. These ASTs are located directly behind the generator station on a concrete pad. The concrete pad has 12" tall walls built around the pad that provide secondary containment. The tanks comply with UL specifications 142 for above ground fuel storage for flammable and combustible liquids (UL 2002), UL 2085 standard as a fire resistant/insulated and protected tank (UL 1997), and Steel Tank Institute Standard F921 for double-wall aboveground storage tanks (STI 2003).

AST #6: AST #6 is planned as a double-walled, 1,000-gallon AST containing used oil. The AST will likely be rectangular and horizontally situated. The primary tank should consist of welded steel plate construction that is compatible with the used oil held in the tank. Leak detection will be provided between the secondary containment (shell) and the steel tank. A Veeder Root TLS-300 leak detection system should be installed to monitor the interstitial space between the shell and steel tank for the presence of liquids. The tank should comply with UL specifications 142 for above ground fuel storage for flammable and combustible liquids (UL 2002), UL 2085 standard as a fire resistant/insulated and

protected tank (UL 1997), and Steel Tank Institute Standard F921 for double-wall aboveground storage tanks (STI 2003).

AST #7: AST # 7 is a double-walled, 110 gallon wall base mounted diesel fuel tank for a 230 kW Caterpillar generator that is transported around the mine surface facilities. The AST is rectangular and horizontally situated beneath the generator. This generator is hauled around the surface mine facilities to operate pumps and supply other electrical needs to remote locations. A portable spill kit is carried with the generator when it is transported and when it is in operations at remote locations. It is recommended that this AST is housed within a covered structure with a concrete floor when not in use.

AST #8 is a 500-gallon AST for motor oil. This AST is manufactured from 12 gauge steel and contains a vent pipe, an at-a-glance fill gauge, 2" vented fill fitting, oil distribution pump and pump line, and a 4" emergency overfill vent. The motor oil tank is located on the shop floor along the back wall of the vehicle maintenance area. Any spill or leak from this tank will be contained within the shop and collected in the trench drains for the shop. The oil will then be conveyed to the water recycler where it will be separated, collected and treated. This tank was manufactured by Airmac Service Company and was built per UL 142 standards for single wall design.

AST #9 is a 500-gallon AST for hydraulic oil. This AST is manufactured from 12 gauge steel and contains a vent pipe, an at-a-glance fill gauge, 2" vented fill fitting, oil distribution pump and pump line and a 4" emergency overfill vent. The hydraulic oil tank is located on the shop floor along the back wall of the vehicle maintenance area. Any spill or leak from this tank will be contained within the shop and collected in the trench drains for the shop. The oil will then be conveyed to the water recycler where it will be separated, collected and treated. This tank was manufactured by Airmac Service Company and was built per UL 142 standards for single wall design.

AST #10 is a 350-gallon AST for rock drill oil. This AST is manufactured from 12 gauge steel and contains a vent pipe, an at-a-glance fill gauge, 2" vented fill fitting, oil distribution pump and pump line and a 4" emergency overfill vent. The rock drill oil tank is located on the shop floor along the back wall of the vehicle maintenance area. Any spill or leak from this tank will be contained within the shop and collected in the trench drains for the shop. The oil will then be conveyed to the water recycler where it will be separated, collected and treated. This tank was manufactured by Airmac Service Company and was built per UL 142 standards for single wall design.

AST #11 is a 350-gallon AST for gear oil. This AST is manufactured from 12 gauge steel and contains a vent pipe, an at-a-glance fill gauge, 2" vented fill fitting, oil distribution pump and pump line and a 4" emergency overfill vent. The gear oil tank is located on the shop floor along the back wall of the vehicle maintenance area. Any spill or leak from this tank will be contained within the shop and collected in the trench drains for the shop. The oil will then be conveyed to the water recycler where it will be separated, collected and treated. This tank was manufactured by Airmac Service Company and was built per UL 142 standards for single wall design.

an existing ephemeral drainage. The channel is designed to minimize the volume of runoff that will flow down the WRA slopes during both active mine operations and the post-reclamation period. A temporary drainage channel is also proposed along the west side of the county road. The channel is designed to capture runoff from the upslope WRA, OS, and TS areas. Channel flow will discharge into a temporary sediment basin that will, in turn, discharge into an existing ephemeral drainage. The temporary channel and basin will be backfilled during site reclamation and the natural drainage system restored. Earthen berms will be used to divert water from the surface facility area into the temporary sediment basins.

As shown on Figure 6, the former dam will be reconstructed across a west to east trending ephemeral drainage located on top of the mesa. The evaporation pond created by the dam will encompass a maximum of 18.2 acres within a hydrologic basin of approximately 50.8 acres. Surface runoff from the surrounding basin will flow into the pond area. The pond is separated from the larger watershed and drainage system located west of the pond by a naturally occurring low ridgeline.

Sediment control measures including undisturbed buffer areas, sedimentation ponds, earthen berms, and straw bale barriers will also be placed downgradient from disturbed areas to minimize the volume of sediment impacting the drainage system. See Sections 107, 109.1, 109.4, and Attachments G and H for additional information on drainage control structures and sediment control during active mine operations.

Fuel and Oil Storage Areas - Diesel fuel, gasoline, and other petroleum products will be stored on-site in tanks, drums, and smaller containers. The fueling station, shown on Figure 5, will store approximately 10,000 gallons of diesel fuel in two tanks and 500 gallons of gasoline. The tanks will be double-walled. The fueling station containment area will be surrounded with soil berms and covered with a plastic liner to contain any fuel spills or leaks. The plastic liner will be covered with a protective layer of soil and gravel. The berms will be established at the height necessary to contain the total volume of the largest tank within the containment area plus an additional ten percent. The fueling areas will be sloped so that any spills during equipment fueling or fuel delivery to the site will flow into the containment area.

Diesel fuel for the generators (see Figure 5) will be supplied by two 850 gallon tanks built into the skid-mounted installation. The two aforementioned 5,000-gallons diesel tanks will provide additional fuel storage and will feed into the skid-mounted tanks. The generator fuel tanks will be located within a bermed and lined area similar to the secondary containment for the fuel station.

Up to 2,000 gallons of ~~antifreeze and~~ oil products (i.e., motor oil, hydraulic oil, gear oil~~, and used oil~~) will be stored at the maintenance shop within the shop floor and used-oil storage area. With the exception of the used oil tank, these products will typically be stored in smaller tanks of ~~less than 100~~ **350 and 500** gallons **tanks**~~, drums, and small containers~~. The used oil tank will be approximately 1,000 gallons and will be located on a concrete pad along the outside wall of the shop. The pad will be equipped with a low wall or curbing that is designed to contain the entire contents of the tank if a leak occurs. The containers in the shop area sit on spill-containment pallets. Any spills in the shop area will be contained within the shop walls and the sand trap that is between the shop drain and septic system. A vendor will periodically pump the sand trap and used oil tank contents into a tanker truck, which will transport the oil to a recycling facility. **A 110-gallon tank of diesel will travel with the mobile generator.** See Section 107 and Attachment I for additional information on the transportation, storage, use, and spill response for petroleum products.

Mine Offices and Dry – Mobile trailers will be initially used to house the mine offices and change/shower facilities (i.e., dry). If the mine develops as expected, these trailers may be replaced